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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

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ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/660,305	Applicant(s) WARREN ET AL.	
	Examiner NATHAN H. BROWN JR	Art Unit 2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE (3) MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31, 33-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-36 is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Examiner's Detailed Office Action

1. This Office Action is responsive to the communication for application 10/660,305, filed March 20, 2008.
2. Claims 1-31 and 33-38 are pending. Claims 1, 18, 29, 31, and 33 are currently amended. Claim 32 is cancelled. Claims 2-17, 19-28, 30, and 34-38 are original.
3. After the previous office action, claims 1-31 and 33-38 stood rejected.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-17, 37 and 38 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter: software per se. Amended independent claim 1

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recites a "collection of software tools embodied on a computer readable medium". Software stored on a medium (as defined in the Specification, pp. 9-25) is not considered functional, but just source code or software per se. Therefore claim 1 is considered non-statutory under 35 U.S.C. 101. Claims 2-17 and 37 provide detailed limitations for the software tools, but do not cure the deficiency of claim 1. Examiner considers a "graphical user interface" defined as a "component of the ODC" in the Specification at page 52 to also be source code or software per se, since the ODC itself is defined as a software tool in the Specification at page 41. Since claims 2-17, 37 and 38 do not cure the deficiency of claim 1, claims 1-17, 37 and 38 are considered to be non-statutory under 35 U.S.C. 101.

6. Claims 18-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter: software per se. Amended independent claim 18 recites a "web agent creator embodied on a computer readable medium" having a number of components "capable of" performing a number of specified functions. Since the "agent" is recited to be merely "capable of" of performing a number of specified functions, but not functional to perform a number of specified functions, Examiner considers the "agent" to be only source code stored on

a computer readable medium. Therefore claim 18 is considered non-statutory under 35 U.S.C. 101. Claims 19-28 provide detailed limitations for the "agent", but do not cure the deficiency of claim 18, Claims 18-28 are therefore considered non-statutory under 35 U.S.C. 101.

7. Claims 29 and 30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter: non-functional descriptive material. Amended independent claim 29 recites an "ontology directed classifier embodied on a computer readable medium for use with an ontology management system designed to manage product information". Since the "ontology directed classifier" is recited to be "designed to manage product information" but not functional to manage product information, the claimed means are considered to be non-functional descriptive material embodied on a computer readable medium. Therefore claim 29 is considered non-statutory under 35 U.S.C. 101. Claim 30 merely provides further means limitations, but does not cure the deficiency of claim 29, therefore claims 29 and 30 are considered non-statutory under 35 U.S.C. 101.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by *Embley*, "Ontology-Based Extraction and Structuring of Information from Data-Rich Unstructured Documents", 1998.

Regarding claim 31. (currently amended) *Embley* teaches an ontology directed extractor embodied on a computer readable medium (see §5 Future Work, *Examiner interprets "Front-end page processors" and "back-end display generators" to be third-generation computers comprising machine readable magnetic disk drives.*) for use with an ontology management system and for extracting product information attributes and their values (see §1 Introduction, *Examiner interprets "an automated approach to extracting information from unstructured documents and*

reformulating the information as relations in a database" (see §3.2 Application Examples, "The structured-text generator creates two tuples...") using an "ontology based" methodology to comprise ontology management system designed to manage product information and extracting product information attributes and their values.), said ontology directed extractor, comprising:

means for receiving an unstructured text description about a product as input (see above), and

means for producing a set of structured property values about the product as output (see above, Examiner interprets relations in a database to be a set of structured property values about the product.), wherein

said structured property values are structured by ontology relationships (see Fig. 2 and §3.2 Application Examples, "Figure 2 gives a graphical layout of our car-ads ontology..." and "The relational schema generated from the ontology in Figure 3 includes three tables: Car(Car, Year, Make, Model, Mileage, Price, PhoneNr), PhoneNr(PhoneNr, Extension), and CarFeature(Car, Feature).").

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this

Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Oracle**, *"Oracle Express Web Agent User's Guide"*, 1999 in view of **Collis et al.** (Collis), *"The Zeus Agent Building Toolkit ZEUS Technical Manual, Release 1.0"*, September 1999 and further in view of **Embley**.

Regarding claim 1. (Currently amended) *Oracle* teaches a collection of software tools (see §Creating OLAP Web Sites, "A Developer's Toolkit, provided with the Express Web Agent...", Examiner interprets a "Developer's Toolkit" to be a collection of software tools.) embodied on a computer readable medium (see §Running the Samples Application, p. 1-3, "OLAP Express Server CD") for acquiring data from diverse sources and/or structuring

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the data and/or determining similarity of content for the purpose of product information management (see §Choosing a View Type, Examiner interprets example Java graphs, Java tables, and HTML tables shown to structure data acquired from diverse sources for the purpose of product information management.).

ORACLE doesn't teach:

two or more tools selected from the group consisting of a web agent creator for creating a web agent to seek out and acquire product information on the world wide web,

a web agent created by the web agent creator, the web agent capable of acquiring product information from the world wide web,

a web agent manager,

an ontology-directed classifier capable of classifying product information,

an ontology-directed extractor capable of extracting product information from content contained in unstructured textual product descriptions, and

an ontology-directed matcher capable of matching product information extracted by the extractor through matching product categories and attributes.

Collis does teach:

two or more tools selected from the group consisting of a web agent creator for creating a web agent to seek out and acquire product information on the world wide web (see p. 9, "Fig. 3.1: Components of the ZEUS agent building toolkit."),

a web agent created by the web agent creator, the web agent capable of acquiring product information from the world wide web (see Information and control flow in the generic ZEUS agent, pp. 11-12, *Examiner interprets "resources that are required by the plan" to be products.*),

a web agent manager (see §4.2 THE CO-ORDINATION ENGINE, pp. 19-21, *Examiner interprets THE CO-ORDINATION ENGINE to be the web agent manager.*).

Collis does not teach a:

an ontology-directed classifier capable of classifying product information,

an ontology-directed extractor capable of extracting product information from content contained in unstructured textual product descriptions, and

an ontology-directed matcher capable of matching product information extracted by the extractor through matching product categories and attributes.

However, *Embley* does teach a:

an ontology-directed classifier capable of classifying product information (see §3.1 High-Level Description, "1. Keyword Proximity. If the constraints in the ontology require at most one constant for an object set, and if there is a context keyword for the object set in the name/string/position table, we use keyword proximity to reject all but the closest constant tagged with the same object-set name as the keyword's object-set name.", *Examiner interprets using "keyword proximity to reject" to be a distance based classification of text.*),

an ontology-directed extractor capable of extracting product information from content contained in unstructured textual product descriptions (see Abstract and §1 Introduction, "As case studies to test these ideas for this paper, we consider newspaper advertisements for automobiles...", *Examiner interprets "newspaper advertisements for automobiles" to comprise unstructured textual product descriptions.*), and

an ontology-directed matcher capable of matching product information extracted by the extractor through matching product categories and attributes (see §3.1 High-Level Description, "The structured-text generator uses the object/relationship/constraint list and the SQL schema to match attributes (object-set names in the ontology) with values (constants described in the name/string/position table).").

It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Oracle* with *Collis* to facilitate the rapid development of new multi-agent applications by abstracting into a toolkit the common principles and components underlying some existing multi-agent systems and *Oracle* and *Collis* with *Embley* to provide web page extraction resilient to changes in source-document formats (e.g., changes in HTML formatting codes).

Regarding claim 2. (original) *Oracle* in view of *Collis* teaches the collection according to claim 1, wherein:

one or more of the tools (see p. 9, "Fig. 3.1: Components of the ZEUS agent building toolkit.") are example driven (see) through a graphical user interface (see 3.2 §THE ZEUS AGENT BUILDING SOFTWARE, p. 12-13, *Examiner interprets "a visual agent development environment" to be a web browser user interface as the "visualisation tools are generally used online, to visualise the interactions in a multi-agent society live, as they happen."* (see p. 13).).

Regarding claim 3. (original) *Oracle* in view of *Collis* teaches the collection according to claim 1, wherein:

said web agent creator has a web browser interface (see 3.2 THE ZEUS AGENT BUILDING SOFTWARE, p. 12-13, Examiner interprets "a visual agent development environment" to be a web browser user interface as the "visualisation tools are generally used online, to visualise the interactions in a multi-agent society live, as they happen." (see p. 13).) and a web agent is created by navigating to a web page of interest and selecting the kind of information to be extracted from the web page (see Choosing a View Type, Examiner interprets example Java graphs, Java tables, and HTML tables shown to structure data acquired from diverse sources for the purpose of product information management.).

Regarding claim 17. (original) Oracle in view of Collis and further in view of Embley teaches the collection according to claim 1, wherein:

said ontology directed extractor takes unstructured text descriptions about an item as input (see Abstract and §1 Introduction, "As case studies to test these ideas for this paper, we consider newspaper advertisements for automobiles...", Examiner interprets "newspaper advertisements for automobiles" to comprise unstructured textual product descriptions.) and produces a set of structured property values about the item as

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output (see §3.2 Application Examples, "The relational schema generated from the ontology in Figure 3 includes three tables: Car(Car, Year, Make, Model, Mileage, Price, PhoneNr), PhoneNr(PhoneNr, Extension), and CarFeature(Car, Feature).", Examiner interprets relational tables to comprise a set of structured property values about items.).

Allowable Subject Matter

12. The following is a statement of reasons for the indication of allowable subject matter:

13. Regarding claims 33-36. In the currently amended independent claim 33, *Embley* teaches an ontology directed matcher embodied on a computer readable medium for use with an ontology management system to match similar products using product attributes and their values (see §3.1 High-Level Description, "The structured-text generator uses the object/relationship/constraint list and the SQL schema to match attributes (object-set names in the ontology) with values (constants described in the name/string/position table)."), said ontology directed matcher comprising:

means for describing products based on a structured set of properties (see §3.2 *Application Examples*, "The relational schema generated from the ontology in Figure 3 includes three tables: *Car*(*Car*, *Year*, *Make*, *Model*, *Mileage*, *Price*, *PhoneNr*), *PhoneNr*(*PhoneNr*, *Extension*), and *CarFeature*(*Car*, *Feature*).").

Embley does not teach the:

means for defining the relative importance of said properties in describing said products; and

means for scoring the degree of equivalence of products based on said definitions.

Since claims 34-36 depend from claim 33, they are allowable for at least the same reasons as claim 33.

Response to Arguments

15. Applicant's arguments filed October 5, 2007 have been fully considered but they are not persuasive.

Applicants argue:

The invention is related to software which creates a database of product information which is acquired from the world wide web or from other sources. The invention is presently used by the U.S. Department of Defense to make

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purchases of items based on the item's description, cost, location, shipping cost, etc. Thus, the real world application of the software is quite tangible. The Department of Defense saves millions of dollars every year by shopping catalogs created by the present invention. This real world application is described and illustrated throughout the application and the actual software of the invention has been submitted as a CDROM appendix. The invention is not a signal; it is a very useful and valuable software tool.

Examiner responds:

Examiner reminds Applicants that only the claims determine the allowability of the claimed invention. Examiner has provided new grounds of rejection.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan H. Brown, Jr. whose telephone number is 571-272- 8632. The examiner can normally be reached on M-F 0830-1700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on 571-272-3080. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/David R Vincent/
Supervisory Patent
Examiner, Art Unit 2129

Nathan H. Brown, Jr.
June 6, 2008